WATER QUALITY DATA

for Discharges From Uranium Mines and Mills in New Mexico

NM Health and Environment Department
Environmental Improvement Division
WATER POLLUTION CONTROL BUREAU
July 1980

WATER QUALITY DATA FOR DISCHARGES FROM

NEW MEXICO URANIUM MINES AND MILLS

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Table XVIII

Ranchers - Johnny M Mine

	10/27/77 Discharge	11/17/78 Discharge	11/07/79 Discharge	11/07/79 Raw Mine Water
TSS mg/l	2.6	7.8	8.0	1088
TDS mg/l	520	511	574	753
cond μmhos	855	737	784	756
pH	8.35		7.94	7.85
As mg/l	.011	.0056	.017	.044
Ba mg/l	NA	.346	1.671	.212
Se mg/l	.008	.061	.043	.128
Mo mg/l	.24	.325	.390	.612
NH_3 mg/l	.115	.125	.03	.36
Na mg/l	101.2	101.2	101.2	101.2
Cl mg/l	8.8	10.2	14.1	8.53
SO_4 mg/l	213.7	204.5	183.7	188.5
Ca mg/l		55.2	55.8	51.6
K mg/l		3.9	3.51	3.90
bicarbonate mg/l		237.4	246.5	256.0
Cd mg/l		<.005	<.001	< .001
nitrate + nitrite mg/l		.56	.38	.36
Mg mg/l			11.5	15.6
V mg/l		.043	.027	1.408
Zn mg/l		<.100	<.250	< .250
Al mg/l			.645	17.8
Pb mg/l		<.005	<.005	.008
gross ∝ pCi/l		1500±100	700±50	1700±100
Ra-226 pCi/l	23.±1	200±10	3.0±.9	
Ra-228 pCi/l	0±2			
Pb-210 pCi/l	33±6			
U mg/l	.67	.76	2.25	5.09

raw mine water sample withdrawn at the inlet to the initial settling pond at the Section 35 mine. The temperature of this raw mine water was 20.3°C.

Prior to 1979 there was a pond associated with early sand-slime separations for backfill located near Section 35. The radiological data for this pond, sampled in 1978, is shown in Table XVII. During 1979 Kerr-McGee reclaimed the pond area; it appears that they have not only produced a gently contoured area, but also have reseeded the disturbed surface.

Ranchers Exploration and Development Company Johnny M Mine

Further to the east of Section 36 is the Johnny M mine of Ranchers Exploration and Development Corp. The host rock is the Poison Canyon Member of the Morrison Formation. Backfill using sands from Kerr-McGee's mill with a technique similar to that used at Kerr-McGee's Section 35 and Section 36 mines began in 1977. This mine is relatively young, and in 1977 when the first visit was made, treatment of the discharge was flocculant and batches of $BaCl_2$ addition as the water entered the first of the two unlined settling ponds. Since then a facility for the $BaCl_2$ addition has been built and 100 pounds per day or about 5.5 mg of $BaCl_2$ per liter of inflow water is added. In 1977 the discharge was 800 gpm; in 1978, 1000 gpm; and in 1979, 1500 gpm. Water temperature of the mine water outflow was 21°C. Any treated mine water not taken by the Lee Ranch for irrigation use is piped to a discharge ditch which drains into the Rio San Mateo.

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